

CACTUS AND SUCCULENT JOURNAL

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Of America

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Euphorbia Crest
See page 130



JOURNAL OF THE CACTUS AND SUCCULENT SOCIETY OF AMERICA

A monthly magazine devoted exclusively to Cacti and Succulents for the dissemination of knowledge and the recording of hitherto unpublished data in order that the culture and study of these particular plants may attain the popularity which is justly theirs. "The Cactaceae," by N. L. Britton and J. N. Rose, has been adopted by this Journal for purposes of identification.

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VOLUME I.	JANUARY, 1930	NUMBER 7.
The Genus <i>Opuntia</i>	Dr. Arthur D. Houghton	123-124
Notes from Huntington Botanical Gardens.....	Wm. Hertrich	125-126
Some Seedlings.....		126
A New <i>Mamillaria</i> from Mexico.....	A translation by F. Weinberg	127
Titanopsis and Some Others.....	James West	128-129
Crassula	Eric Walther	131-134
Cactus in Canada.....	C. W. Armstrong	135
Ozonium Root Rot.....	H. C. Kegley	136
The Window Garden.....	Grace A. M. Clark	137
Your Secretary's Column.....	R. E. Willis	138
Question Page.....	F. Weinberg	139

The Year's Activities of The Cactus and Succulent Society of America

By R. E. WILLIS, *Secretary*

It seems fitting at this time to review the past year's activities of the Society.

At various times in past years when cactus and succulent collectors happened to get together, someone would be sure to start a discussion about a society that would include all the lovers of the most interesting plants in the world. All these discussions finally led to an invitation being mailed, during the latter part of 1928, to all then known local collectors, to meet January 6 at the residence of Dr. Arthur D. Houghton in San Fernando, Calif., for the purpose of forming a permanent society.

At this meeting the organization was completed and officers elected, committees appointed, etc. About 60 members were recorded. This membership was increased to 215 before the charter closed, February 15.

As the Society became known, memberships began to come in from all parts of California and many from all the southern states; a few from nearly every state in the Union. We also have members in Canada, Mexico, and most of the European countries, Africa, South America, Australia, and in fact in nearly every corner of the globe. Even China and Japan are represented.

Soon after we organized we began publication of the Journal, the first issue appearing in July. We are proud of our Journal, and our subscription list includes the world's most eminent botanists and horticulturists, many libraries, colleges, botanical institutes, herbariums and arboreums, and an ever growing list of private collectors.

During the latter part of August we held the first exclusive Cactus and Succulent show ever held in the

United States. This show was held in Pasadena, California, and drew capacity crowds every day.

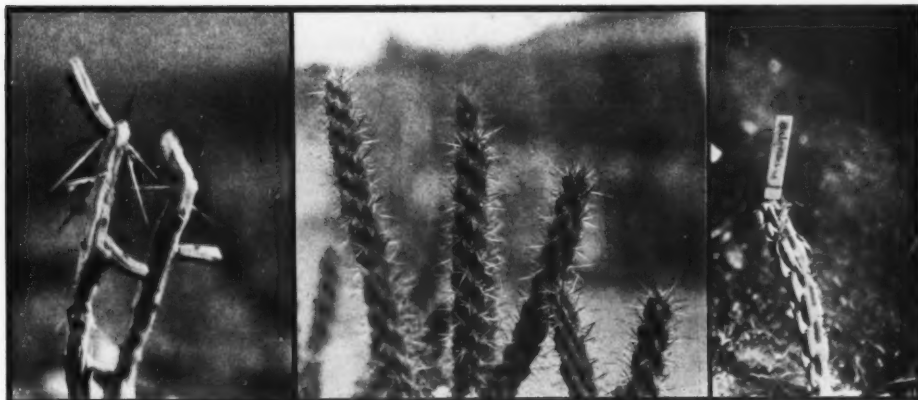
During November our bylaws were revised to meet our new requirements, namely those of an international organization with a large and representative membership.

During the year we held six meetings in lecture halls in Los Angeles and Pasadena, and seven meetings at homes of members who had extensive collections; at most of these meetings we had short lectures or talks, some of which were illustrated with stereopticon slides. The attendance far exceeded the average ratio between membership and attendance. The Board of Directors held 12 business meetings during the year.

Our Librarian has a very good library of reference books and catalogues from all over the world, and it is being constantly added to through gifts from publishers and individuals.

During 1929 our dues were \$1.00 per year and the subscription to the Journal was \$2.00 per year, each carried as a separate account. As nearly every member was a subscriber, and nearly every subscriber was also a member the bylaws were changed so that after January 1, 1930, the dues will be \$3.00 per year, which will include the Journal. The subscription to the Journal without the membership will be the same as with membership; a second member in any family will pay only \$1.00 per year dues. Add 50c to above for foreign.

Being on a sound financial basis with the continued publication of our Journal assured, the future of the Society is bright indeed.

*O. arbuscula* Eng.*O. fulgida* Eng.*O. imbricata* Haw.

THE GENUS OPUNTIA, Tournefort

By DR. ARTHUR D. HOUGHTON

This genus is composed of plants which sometimes have definite trunks like a tree, but usually branching from the base; these branches may be arranged in any manner except climbing. The branches are sometimes cylindrical, sometimes flattened or nearly globose. The leaves are awl-shaped, small, and usually fall off early, except in *O. subulata*, whose large subulate leaves remind one of *Pereskia*. The spines may occur singly or in clusters, without angles or variously flattened.

These spines may be naked, or to my mind, one of the most wonderful things in nature, they may be covered with a delicate paper sheath, and may be pure white through the whole run of color, bright yellow to coal black. The glochids are usually numerous, and are placed in the areoles above the spines. There is usually one flower from an areole. The ovary bears leaves and has areoles usually beset with spines and glochids. The sepals and petals often beautifully colored in green, yellow and red (white as in *O. papyracantha* and one or two others, being very rare); the stamens are much shorter than the petals and are sensitive, *i.e.*, they move like a sensitive plant upon being touched; the style is single and thick, with short stigma lobes; the fruit is a berry which in some species is hard and dry and in others juicy.

In some species the juicy fruits are delicious to eat, and many fine preserves and conserves may be made by combining the fruits of the most desirable kinds. Mr. Shafer of Tujunga, Calif., has done considerable research in this line making

tasty jams, candied fruits, preserves, jellies, fruit juices and punches. A man about a mile from where I live ships the fruit of an *Opuntia* to Chicago each year, apparently with profitable results. The fruits may be spiny or naked and of various shapes. The seed is covered by a hard, bony arillus; white, flattened. The cotyledons or seed leaves are large. The seed is usually very easy to germinate and the seedlings grow rapidly.

The Indians who work in the mines around Guanajuato, Mexico, for medicinal purposes during the fruiting season, take what they call an eat-and-a-half of *Opuntia* fruit for which they pay ten centavos. This is performed by first gorging the stomach full, then emptying the stomach after the manner of the Romans and then eating again.

At one time certain spineless cacti were exploited by a much-advertised man, which, when planted upon our deserts, were to make the deserts flourish as dairy farms; the creamery and meat products enriching the desert farmers. Cactus pads or branches were sold at from \$2.00 to \$5.00 apiece. Like the tulip and mulberry crazes, the exploiters were the only ones who did not lose, and the U. S. Department of Agriculture found it necessary to issue a warning bulletin. The Santa Fe Railroad Co. arranged to grow the spineless cactus on an immense scale, but soon discovered that the deserts were too cold for the plants in winter and too dry in summer. The Agricultural Department experimenters found that a cow would have to eat

about half a ton of the stuff at a meal on account of its low nourishing value. Strangely enough the very spiniest forms in Texas are fed to cattle as an emergency ration in times of food scarcity by first burning off the spines with a blow torch.

Britton and Rose recognize about 250 species which they divide into three subgenera. The first subgenus *Cylindropuntia* has cylindrical stems numerous branched, the branches being many jointed; this subgenus contains 13 series. The second subgenus *Tephrocactus* has branches which are one to a few jointed, the short joints being usually clustered; it contains 4 series, all from South America. The third subgenus *Platyopuntia* contains 29 series, in 28 of which the plants are characterized by at least some of the joints being flat or compressed. Series 29, the *Chaffeyanae*, has annual stems from a large root stock.

The first series in subgenus *Cylindropuntia* is called *Ramosissimae*; it contains only one species. The name *Ramosissimae* means branchiest. You remember when studying Latin grammar your positive, comparative, superlative, high—higher—highest, which in Latin would be *excelsis*, *excelsior*, *excelsissimus*; so we have *ramosa*, branchy—*ramosior*, branchier—*ramosissima*, branchiest.

O. ramosissima, Eng., is a California species, very branchy or bushy, sometimes nearly six feet high. The whole plant is covered by diamond-shaped tubercles, with tiny egg-shaped leaves; the tawny wool and pale glochids are compressed into the slits between the diamond-shaped tubercles; the branches range from the thickness of a lead pencil up to half an inch. Some plants of this species are quite densely covered with very long, mostly single spines, covered with loose, yellow, papery sheaths. The presence or absence of these large spines made observers think that there were two species, and we find them described as *O. tesellata* and *O. tesellata denudata*. The presence of spiny and non-spiny branches on the same plant showed that there was but one species. The flower is greenish-yellow tinged with red. The ovary is narrowly obconic (a cone reversed, that is, with the point towards the plant), it is covered with tubercles, with wool-bearing areoles and long glochids, but no spines. The fruit is dry, obovate (whenever "ob" appears before a word it means reversed or upside down; so obovate means egg-shaped with the narrow end toward the branch), 1 inch long. It is covered with weak, slender spines, like a burr; very few seeds are produced. This species is quite unsucculent; in fact, it is so dry that it is difficult to root from cuttings; however, it and its beautiful cristate form does very well when grafted on *Selenicereus pteranthus*. It

grows on low hills in the dry deserts of the riverine states of the lower Colorado River.

Series 2: *Leptocaulis*. This series of seven species is characterized by bushy plants with slender joints without diamond-shaped markings; the ultimate joints one-eighth to one-half inch thick, are easily detached and bear small flowers.

O. mortolensis B. and R. from Empalme, Sonora, Mexico, differs from the rest of the series in having long white hairs at its young areoles, otherwise it is very similar to our common *O. leptocaulis*.

O. leptocaulis DeCandolle is a compact bushy plant with joints about as thick as an ordinary lead pencil; single, long, acicular spines pointing somewhat downward, emerging from small areoles, having short white wool and brown glochids. The spines are cased in whitey-brown sheaths; the fruits from one-half to one inch long, are bright red, obconical, with distant areoles and a deep white umbilicus (navel) at the top. It grows about six feet high. It grows from the Southwestern United States, as far south as Puebla, Mexico.

O. tesajo, Eng., is so little known that I will not write about it until I have seen it.

O. caribaea B. and R. is a plant somewhat similar to *O. leptocaulis*, but with much thicker joints and a larger sterile fruit. It forms dense thickets in the Islands of Santo Domingo, Trinidad, Margarita, and on the northern coast of Venezuela.

O. arbuscula, Eng., while having the general characteristics of its series, tends to form bushes and even trees. In Britton and Rose there is a picture of a shapely tree of this species which with a little bottom pruning would make a handsome park tree. The specimen figured grew in the Santa Rita Mountains of Arizona. The species extends into Sonora. The flowers are handsome yellow; the fruit is usually one seeded and proliferous (one fruit growing out of the other).

O. kleiniae DeCandolle. This plant differs from the rest of the series in the joints being tuberculate (have the areoles raised so that the lines of depression form a pattern). The leaves are also larger and more persistent than in other of the series. The plants are sometimes seven feet tall, woody at the base. The tubercles are long and narrow; the areoles are longer than wide and contain white wool; spines usually single with yellow sheaths; but on an old growth bristle-like spines come from the margin of the areoles; leaves one-half inch long; flowers purplish; fruits red, up to one inch long. This species is distributed from Texas to Central Mexico.

Continued on page 139



NOTES FROM THE HUNTINGTON BOTANIC GARDEN

By W.M. HERTRICH

No. 2 *Cleistocactus areolatus* Riccobono

The plant forming the subject of our illustration has been in cultivation at least since 1860, when it was first listed as *Cereus areolatus*, and is said to be a native of the Central Andes of South America. Since its flowers were unknown, its exact generic position remained in doubt, even to Britton and Rose, who mention it after *Harrisia*, as perhaps belonging to that genus. A plant in the collection of the Huntington Botanic Garden flowered August 20, 1929; the first time this species has done so anywhere to our knowledge. All possibility of its being a species of *Harrisia* is definitely re-

moved by the shape of the perianth; and it agrees perfectly with the essential characters of *Cleistocactus* given by Britton & Rose, as follows:

GENERIC CHARACTERS: Flowers solitary, not from a lateral pseudocephalium; perianth subcylindric; limb short or none; scales of ovary and tube laniferous in their axils; perianth-tube slender, elongate; stamens exserted.

Accepting the position of our plant in *Cleistocactus* Lemaire, the key to this genus given by Britton & Rose in "The Cactaceae" may be modified as follows:

CLEISTOCACTUS Lemaire.

KEY TO SPECIES

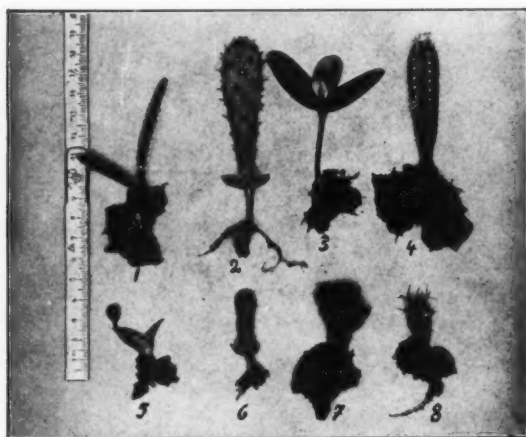
- Flowers orange-yellow, to 7.5 cm. long. 1. *C. anguineus*
 Flowers red, rose or green.
 Perianth-tube bent; flowers orange to scarlet. 2. *C. baumanni*
 BB. Perianth-tube straight; flowers green or violet-rose.
 C. Flowers with green perianth-segments; stems slender, 2-2.5 cm. in diameter. 3. *C. smaragdiflorus*
 CC. Flowers with dark rose perianth-tube and violet-rose segments; stems 3-6 cm. in diameter
 4. *C. areolatus*
4. *Cleistocactus areolatus* Riccobono, in Boll. R. Ort. Bot. Palermo, 8:264; 1909.
 Synonyms: *Cereus areolatus* Muehlenpfordt, Cat. Hort., in Schumann, "Gesamtbeschreibung der Kakteen, 100, fig. 20. 1897.
Cereus dumesnillianus Labour., ex. Cat. Grus.
 (Listed after Harris as *Cereus areolatus* by Britton & Rose, in "The Cactaceae." 2:159; 1920.

DESCRIPTION: Shrubby, to 2 m. tall or more, with many columnar branches from the base, the latter arched-ascending, 3-6 cm. in diameter, colored *pois-green* (Ridgway); ribs 12-15, low, rounded, divided into distinct hexagonal tubercles by transverse grooves just above the areoles, these grooves ascending at a low angle from the areoles towards the sides; furrows sharp; spines yellowish-brown; radial 6-9, acicular, spreading, about 1 cm. long; centrals 2-4, stouter, subulate, 2 cm. long.

FLOWERS: 4 cm. long including the ovary, the latter wholly covered with greyish-brown

felt; perianth-tube dark rose, ribbed, covered with greyish-brown, felted areoles arranged in conspicuous spirals; outer perianth-segments 5 mm. long by 1.5 mm. wide, violet-rose color; inner segments 6 mm. long by 2 mm. wide, violet-rose, darker at tip; filaments 17.5 mm. long, white at base, violet-rose at apex; anthers light yellow, 1 mm. long, 0.5 mm. wide; style 3 cm. long and 1 mm. thick; stigma-lobes 8, grass-green, exserted. The filaments are attached to the lower part of the tube where the latter is divided just above the ovary by an incomplete partition into a pseudochamber which is 6 mm. long and 5 mm. in diameter.

SOME SEEDLINGS



1. *Cereus grandiflorus*
2. *Opuntia duraznillo*
3. *Pereskia amapola*
4. *Cereus jamacaru*
5. *Agave cantala*
6. *Opuntia microdasys*
7. *Cereus pitahaya monstr.*
8. *Echinocactus ingens*

Courtesy F. A. Haage, Jr.

The accompanying illustration shows a number of seedlings of different cacti and one Agave, several weeks after germination. They have for the most part not yet lost their seed-leaves, but are sufficiently developed to show their generic relationships. The large size of the cotyledons characteristic of the genus *Pereskia* is noticeable in the seedling of *P. amapola*. Those of *Opuntia* are almost as large soon after germination, but in the present two examples they are already beginning to be absorbed by the rapidly growing young stems. The plant of *Cereus pita-*

haya monstruosus is interesting as showing the heritability of such abnormal growth habits; a large percentage of seed of this form comes true. The *Echinocactus* is the least developed of the lot, and it is difficult to realize that this little plant is destined to grow into so huge a monster as *E. ingens*, one of the largest of the Mexican viznagas or barrel-cacti. In the Agave seedling we notice the characteristic habit of retaining the seed-envelope for a long time on the top of one of the leaves.

A NEW MAMMILLARIA FROM MEXICO

By DR. E. WERDERMANN,
Botanic Gardens, Dablen, Berlin, Germany

Among the many cactus which annually arrive from Mexico, there are still, off and on, some undescribed species. It seems that many varieties are only found in a very restricted area in remote localities, as otherwise it seems impossible that this beautiful and interesting plant could have escaped the eye of the eager Cactus collector up to now. One of said new plants I received from the discoverer and collector Mr. Schmoll, Mexico, also one from Mr. Hahn, Lichterfelde, after whom this plant was named, according to the collector's wishes.

*Mamillaria bahniana** Werd. n. sp.

Proliferans, rarius simplex, globosa, vertice subumbilicata; mamillae conoideae, + triangulares, parvulae, numerosissimae, lactescentes areolae juveniles breviter lanuginosae, dein bruno-tomentosae, mox glabrescentes; axillae lana albida setisque albidis, numerosis, longis praeditae; aculei radiales ca. 20-30, capilliformes, albidis, crispatis, + horizontaliter radiantes, setis multo breviores; aculei centrales 1 (rarius 2-4), porrecti, aciculares, pungentes, albidis, apice ferruginei, basi incrassati; flores ignoti; fructus subclaviformis ruber; semina pyriformia, pulla, verrucosa.

The plant grows (as per written statement of the collector) mostly in clusters or clumps, seldom found in single specimens. The unbranched body measures up to 9 cm. in height and 10 cm. in diameter. Upon a short denuded trunk rests the new growing body in form of a slightly depressed ball. The new growing areoles on top of the plant are woolly, numerous, with the short central spine hardly protruding. The extraordinary numerous, rather crowded small tubercles are light green in color, cone shaped and slightly three cornered, upper side rounded off, under side cornered, circa 5 mm. long and 2 to 3 mm. in diameter at the base. When injured milk flows in profusion. Areoles elliptic, hardly 1 mm. in diameter, covered with white wool, which in age disappears. Spines 20 to 30, clear white, hair-like and soft, 5 to 15 mm. long, laterally pectinate, more or less horizontal, mostly curly or wavy. Central spines found only on the young new growth, typically one (seldom 2-4), straight, needle like, hardly 4 mm. long, with a red-brown point, bulbous and transparent at the base; with age they mostly become injured and

broken. Flowers unknown at present. Fruit a small, club-shaped, red berry, 0.5 to 0.7 cm. long; size of seed 1 to 1.5 mm., pear shaped, sometimes slightly cornered, dark brown, dull and rough.

The plant grows in Mexico, at an altitude of 2000 m., exact locality will be given later.

This new variety looks more like a *Cephalocereus senilis* than a *Mamillaria*. The whole plant is closely covered with long, hair-like, flexible, interwoven spines. The slightly stronger, remarkably long axillary bristles protrude from the former, then grow downward, which seems to give the plant a second covering, although sometimes they grow more or less straight from



the body, giving the plant a bristly appearance. No flowers have as yet been observed, not even by the collector. According to Schumann's classification it would be best to group said new plant with the *Leucocephalae* of the *Galactochyllus* section.

Translated from "Monatsschrift der Deutschen Kakteen-Gesellschaft" of April, 1929.

F. WEINBERG.

*Spelled *Mamillaria* in *The Cactaceae* by Britton and Rose. If Britton and Rose had described this plant it would have been called *Neomamillaria*.

TITANOPSIS AND SOME OTHERS

By JAMES WEST, San Rafael, Calif.

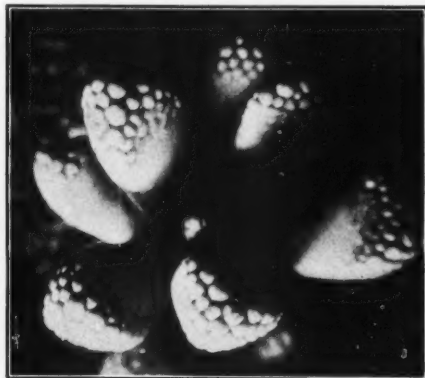
Even the most unbotanical visitor seldom fails to take notice of a specimen of *Titanopsis* in a collection of *Mesembrianthemums*, so striking and unusual is its appearance among the others, more like some strange coralline structure from subaqueous depths than a plant.

This resemblance to calcareous matter is not accidental, for these plants have their habitat in broken lime-stone tufa and nowhere else; another example of protective mimicry among the tribe of *Mesembrieae*, so protean in their adaptability to surroundings. The effect of a rough, stone-like appearance is produced by the exaggeration of a character fairly common in the tribe, that of granulation of the leaf-surface. Here it is carried to an extreme, by enlargement of the granules and their crowding so as to produce a complete covering of the surface as with a rough white encrustation. The granulation is limited to the enlarged and broadly truncate tips of the leaves, the rest of the surface being quite smooth. The granules are beautifully graduated in size, being smallest where they merge into the glabrous surface and becoming progressively larger towards the tip, where they are largest, and coalesce somewhat. The whole produces a lovely mosaic of sparkling droplets of the texture of unpolished marble, separated by an intricate reticulation of darker lines. The individual grains are not unlike those on the margaritiforous *Haworthias* and on some encrusted *Saxifragas*.

The whole plant is intensely white-glaucous, suffused with sea-green and an occasional pinkish-violet tinge. The leaves, in rather crowded rosettes, are opposite, standing out on all sides, and presenting chiefly the encrusted tips to view, thus shielding the more delicate unprotected parts from excessive insolation. A clump of these rosettes has a flattened-hemispherical or cushion shape characteristic of so many cespitose succulents (e. g. *Echerevias*, *Haworthias* and *Mamillarias*); the aim being of course the economising of transpiration through a maximum of self-shading, produced mutually by a sort of co-operation among the individual leaves, rosettes, tubercles or branchlets.

The genus *Titanopsis* was segregated by Dr. Schwantes from *Mesembrianthemum* a year or two ago, and includes two (or possibly three) species. The name is derived from *titanos*, a Greek word meaning gypsum or limestone (no connection with the mythological Titans). Berger included the type-species, *M. calcaureum*, in Ha-

worth's section *Aloidea*, but doubtfully. This not very large section has to date furnished no less than four of the new genera, *Acaulon* N. E. Br., *Aloinopsis* Schw., *Nananthus* N. E. Br. and *Ti-*



Seedling plant of *Titanopsis Schwantesii* (Dtr.) Schw.
x3 Photo by J. West

tanopsis Schw.; an additional one, faintly discernible above the horizon, seems to be threatening from Mrs. Bolus in the shape of *Noctiflora*, so far only a tentative sub-genus.

Titanopsis includes plants with the leaf-characters already described, fleshy roots (common to all the *Aloidea*), flowers nearly sessile, open at noon, yellow, calyx six-parted, sepals equal in size, petals in one series (so in *Aloinopsis*, but not in *Nananthus*), stamens hairy at base, white, converging in a compact conical column (characters likewise shared by *Aloinopsis*, but not *Nananthus*) stigmas linear, six in number (7-10 in the other genera) linear, exceeding the stamens, capsules five-valved.

T. calcaurea (Marl.) Schw. is the longest known species, described by Dr. Marloth in 1907, from the Transvaal (near Kimberley), Griquatown on the Cape Plateau and some other localities. Later Dr. Dinter discovered *T. schwantesii* in South-West Africa. Both plants are in cultivation in Europe, but still quite rare with us, though seed is obtainable. Both species have proved quite amiable subjects, at least in the rather limited experience of this writer, young seedlings having, contrary to expectations, borne a cold and rainy Marin County winter practically without protection; in accordance with presumable preferences, they were planted in a soil consisting largely of ground mortar.

The genus *Aloinopsis* Schw. includes the majority of the other Aloideae. The best known of these with us is *A. vittata* (Haw.) Schw. (*Nananthus vittatus* N. E. Br.), fairly common in cultivation in California. The plant is low and densely caespitose, soon forming mats, with roughly granular grey-green leaves, somewhat wrinkled or flabby in texture, short, triangular, but without sharp keels or margins; the root is carrot-like. The flowers are of a rather dull pinkish-yellow, with reddish mid-stripe, pretty, but not gaudy. Here again we find the stamens converging into a tight cone.

Amuch rarer plant is the subject of our illustration, *A. aloides* (Haw.) Schw. Indeed, as far as we know, the original of the photograph,



Flowering plant of *Aloinopsis aloides* (Haw.) Schw.
Photo by J. West

growing in the garden of our member, Mr. Lewis Allen in San Francisco, where it flowered for the first time in October, 1928, is the only one in the country. It is rather similar to the former, but enlarged by one half in all its parts. The petals have not the pronounced red stripe of the other, but the flower is similar in structure. The leaves have a strong tendency to purpurascence in the sun, and are more distinctly channeled above. If not a very striking plant, it is distinctly interesting. It appears to be a much slower grower than its cousin. No other species of the genus are in cultivation here, to our knowledge.

Before going any farther, it may be well to point out that the doctors disagree when it comes to the assignment of the different species to their respective genera. Of Schwantes' 8 species of *Aloinopsis* (a genus he repudiates) Mr. Brown includes 6 in his genus *Nananthus*, rejecting one of the remaining ones (*A. transvaalensis*) as not specifically distinct, and setting up the genus *Acaulon* for *A. rosulata* (L. Bol.) Schw., Dr. Schwantes' type species. As a third party comes Mrs. Bolus to divide the honors between *Aloinopsis* and *Nananthus*, assigning two species to *Nananthus* (*N. albipunctus* and *N. albinotus**),

the others to *Aloinopsis*, and leaving *Acaulon* for the present in suspension, pending further investigation. To the South African botanist, being on the spot, may reasonably be conceded a wider acquaintance with native material, so that we may here adopt her attributions.

Accordingly, *Nananthus* would include only those species with incurved leaves (outcurved in *Aloinopsis*) hard, not flabby in texture with acute margins and keels; flowers opening at 10 a. m. (after 1 p. m. in *Aloinopsis*), receptacle produced beyond the ovary in a conspicuous ring or wall (not visibly so in *A.*) petals loosely arranged in several series (robust and stiffly spread in one series in *A.*) deep golden yellow, lacking a stripe, stamens loosely set, not in a tight column, yellow, not white, stigmas falling short of stamens.

We, being the proud possessor of an undoubted species of *Nananthus*, suspected to be *N. albipunctus*, raised from unnamed seed from Transvaal, had hoped to present its portrait in flower in this issue. But with characteristic perversity the flower, after staying tantalizingly in bud for days before going-to-press time, opened too late to be included this month, and will have to await another issue before appearing in public.

LIST OF SPECIES

- Acaulon rosulatum* (L. Bol.) N. E. Br. (*Aloinopsis rosulata* Schw.)
- Aloinopsis aloides* (Haw.) Schw. (*Nananthus* N. E. Br.)
- Aloinopsis cibdela* Schw. (*Nananthus* N. E. Br.)
- Aloinopsis crassipes* (Marl.) Schw. (*Nananthus* N. E. Br.)
- Aloinopsis Dyerii* (L. Bol.) Schw.
- Aloinopsis Orpenii* (L. Bol.) Schw.
- Aloinopsis Peersii* L. Bol. (*Nananthus* Peersii L. Bol.) subgen. *Noctiflora*).
- Aloinopsis rubrolineata* Schw. (Nan. N. E. Br.)
- Aloinopsis vittata* (Haw.) Schw. (*Nananthus vittatus* N. E. Br.)
- Nananthus albinotus* (Haw.) N. E. Br. (*Aloinopsis abinota* Schw.)
- Nananthus albipunctus* (Haw.) N. E. Br. (*Aloinopsis albipuncta* (Schw.)
- Titanopsis calcarea* (Marl.) Schw.
- Titanopsis Schwantesii* (Dtr.) Schw.
- Titanopsis* (?) *spatulata* (Thumb.) L. Bol.

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- Bolus, H. M. L., in *South African Gardening*. XIX, 245, 288, 1929.
- Brown, N. E., *Jour. Bot.*, v. 66, 78, 1928.

*Both Mrs. Bolus and Berger spell it thus, but in the *Flora Capensis* it is *M. albinatum*, which sounds like better Latin; Haworth's spelling, which would be decisive, I have not seen.

Courtesy F. A. Haage, Jr.



Courtesy F. A. Haage, Jr.

Encephalocarpus strobiliformis,
(Werderm.) Berg.

The accompanying illustration shows another one of the many new, interesting and rare Cacti which have come to us from the Jaumave region in the State of Tamaulipas, Mexico. This cactus was first collected by Viereck and introduced to cultivation in 1927 by German firms. Whether it is yet to be found in American collections, is doubtful. It was first described as an *Ariocarpus*, but Berger, on closer study, found it to have so many divergent characteristics as to require it to be placed in a new monotypic genus *Encephalocarpus* (gr. fruit-in-head). The name alludes to the position of the fruit, buried in the wool of the top. In *Ariocarpus* it is produced, like the flowers, in the axils of the older tubercles, below the top, in *Roseocactus* (formerly *Ariocarpus*) at the base of the furrows of the tubercles.

The picture shows the appearance of the plant. The flowers are lavender-pink, the outer segments very narrow fimbriate, green; stamens few, golden yellow; stigma-lobes yellowish-white. The specific name comes from the pinecone-like aspect given by the closely shingled scaly tubercles. Other cacti from the Llano de Jaumave share this latter characteristic, e. g. *Ariocarpus trigonus* and *Obregonia denegrii*. We recommend this to those of our members who are the fortunate possessors of federal permits!

CORRECTION

In the key to the species of *ALOE*, Vol. 1, No. 6, page 3, line 6-a should read 3 to 4 inches, instead of $\frac{3}{4}$ of an inch.

WHAT CAUSES CRESTS?

Answering your letter dated December 16th, requesting an article on the cresting of plants, I do not see how it is possible to do this for the Journal.

Anyone could write up from photos, the story that such things are, but when it comes to framing up a reason for them, it is more of a job than I care to undertake.

The phenomenon is of course physiological, but just what induces these forms, no one seems to agree. In my opinion Dr. Houghton could give us a reason that would have foundation in reason.

Hertrich claims that fasciation is due to plenty of plant food, a transplanting to richer soil, and proves it.

It can be proven that all the crests on *Euphorbia lactea* we get from Texas, are due to a severe hail storm and consequent injury, but in this particular instance, has proven constant.

Again, in the *Opuntia*, a crest will make normal growths, some say up to four, and then crest again, all of this you know. The trick is to give an explanation, and this I do not feel able to do and have it stand in the Journal.

The wonderful crests on the *Carnegiea* have been attributed to injury as by woodpeckers. You and I have seen hundreds mutilated by blasting for new roads, and never a sign of fasciation in the many miles of travel past.

The better way is to open up a discussion in the Journal, and find first, if anyone has ever been able to *cause* a crest. This would be a fine thing to start the New Year with.

E. O. ORPET.

ED. NOTE: Please send photos of crests and your experiences. What causes a crest?

SANTA BARBARA MUSEUM
OF
NATURAL HISTORY

Mr. G. P. Merritt,
1415 Alta Vista Road,
Santa Barbara.

Dear Mr. Merritt:

I think that all of us in Santa Barbara should support the *Cactus Journal* (a copy of which I am sending to you under separate cover), to the extent of subscribing, and if possible, getting other subscribers.

It is only \$3.00 a year and we not only get our money's worth from the publication itself but, if we can help build up the subscription list, the Journal will steadily become more valuable.

Very truly yours,

RALPH HOFFMAN.

CRASSULA

By ERIC WALTHER

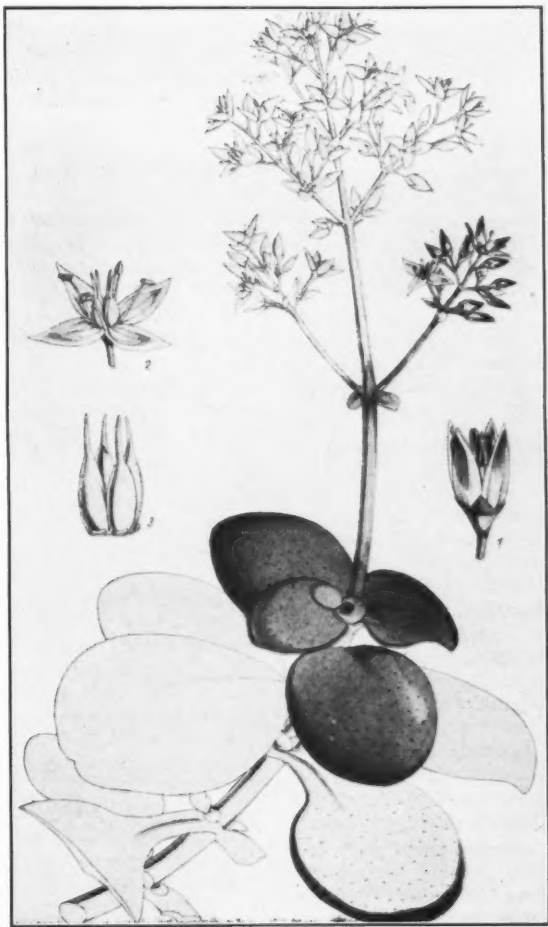
Of the many and varied genera constituting the family *Crassulaceae*, by no means the least interesting is *Crassula* proper. While no doubt many of its species are not particularly showy in flower, nor exceptionally attractive in form and habit, there are nevertheless quite a few, such as the well known *C. falcata*, that possess what are easily among the most brilliantly colored flowers, not only of this, but of most other families of flowering plants as well. Even if the other species now grown here fall behind the above-mentioned in merit, it by no means follows that all the potentialities of the genus have hence been exhausted, as the 18 or more species and varieties now present here in our local collections are only a very small portion of the total of about 300 species known to science, or of the 248 said to be native at the Cape. It would seem that quite a few of these others should be fully as desirable as the ones now grown in our gardens; and it is really difficult to account for the apparent neglect of this genus by our otherwise so enterprising collectors. As long ago as 1812 Haworth described 38 species, probably all from cultivated material; and while 99 species are credited to

South Africa by Harvey in 1862, only 34 are enumerated by Berger as growing in La Mortola in 1912. Considering the ease with which most of the species can be grown and propagated here,

this state of things is both a reproach and a challenge to our local plant-introducers, whose interest and activity these lines are intended to arouse. Without entering here into any lengthy discourse, a few remarks on the kinds now grown in our gardens may be appropriate.

The above-mentioned *C. falcata* is far too well known to require any extended discussion, its glowing orange-scarlet flowers are far too brightly colored to escape attention; coupled with the curiously twisted, greyish leaves, they serve to make this species not only an item of interest, but a striking ornament of any collection.

Another showy species, provisionally identified as *C. impressa*, forms dense, low tufts of reddish-green foliage crowned in summer by masses



Crassula multicava Lemaire, (*C. quadrifida* Baker)

After "Saunders Refugium Botanicum," Plate 298.

Reproduced by courtesy of Huntington Botanic Gardens.

of deep red flowers. In the past this has gone under various names in our gardens, masquerading most often perhaps under the name *C. cooperi*, but the true species of that name has white flowers and red-dotted leaves; it is now also in

of deep red flowers. In the past this has gone under various names in our gardens, masquerading most often perhaps under the name *C. cooperi*, but the true species of that name has white flowers and red-dotted leaves; it is now also in

cultivation here. The plant in question has also been called *C. rubicunda*; it was originally introduced under that name from South Africa, and later placed on the market as *C. schmidtii*, to which name the "Index Kewensis" still refers *C. impressa* N. E. Br. The true *C. rubicunda* grows much taller, reaching a height of about 1 foot or so, has recurved leaves, and does not seem to be in cultivation here as yet.

A quite distinct plant is *C. rosularis*, with all its leaves in a basal rosette, crowded spirally rather than borne in the usual distant, opposite pairs. Its flowers, small and whitish, are fragrant and have the additional merit of being produced during the winter months. Of quite different habit are *C. multicauda* and *C. spatulata*, with trailing stems and distinctly stalked leaves. The former is the subject of our illustration and is remarkable both on account of the abnormally 4-parted flowers and the fact that bulbils are often borne on the inflorescence. It is perhaps better known as *C. quadrifida*, but Lemaire's name seems to antedate Baker's. *C. spatulata* often is misnamed *C. cordata*, but the latter's leaves are truly heart-shaped. It has only quite recently been introduced by our friend Orpet of Santa Barbara.

Another commonly grown species is *C. lycopodioides*, the name referring to its resemblance to a clubmoss or *Lycopodium*. Its variety *pseudolycopodioides* is also met with frequently, but really, it almost seems that the author of that fearful name must have had a grievance against the poor little thing, to burden it with such an unwieldy and unpronounceable appellation. Mention may also be made of the curious *C. perfossa*, with its truly connate leaves threaded on the slender, trailing stems like buttons on a string. Equally queer looking, even if in quite a different style, is *C. perfoliata*, recently becoming more widely distributed in our collections. This is a near relative of the showy *C. falcata*, with the same fine, grey down on the leaves, but the latter are quite straight, channelled above, superposed in 4 vertical ranks, and its flowers are often quite insignificant. Of the various names wrongly applied locally to the last species the most common are perhaps *C. gigantea* and *C. longifolia*. *C. arborescens* and *C. portulacae* are stout shrubs, the latter of which closely resembles the much more tender *Portulacaria afra*; to this similarity the name may be due.

C. tetragona is another species often seen in our gardens, and is remarkable not only on account of its striking habit, or the ease with which every piece breaking off takes root, but also because it has been longer in cultivation probably than any other species, since the date of its

original introduction to Europe is said to have been 1711.

The extremely showy *Roechea coccinea* is nowadays separated from *Crassula* in its narrower sense, since the petals are distinctly coherent to above the middle. It has long been known as a *Crassula*, and the exact delimitation of the various genera of this family will in any case always remain a matter both difficult and disputable.

The striking brilliancy of its bright red flowers is due to the peculiar structure of the epidermal cells of the petals. These are transparent at the apex, permitting the light to enter; their interior is filled with colored sap, within which the rays of light are reflected back and forth several times, to be finally focused on the apical point, causing this last to appear almost burning red. The resultant intensive coloration makes this one of the most brilliantly colored succulents when in flower. The plant thrives in all our coastal districts not too hot and dry and reasonably free from heavy frosts. It should be grown much more widely than it is now, and deserves serious consideration by our florists as a pot-plant.

Of the many further species still awaiting introduction a number are known to us from the available illustrations (see the references quoted), and a few of the more striking ones may here be singled out for mention. The most remarkable species are easily *C. alstonii*, *C. barbata*, *C. columnaris*, *C. hemisphaerica*, *C. mesembrianthemopsis*, *C. pyramidalis* and *C. turrita*. All of these represent various adaptations to the long periods of extreme drought occurring in the different parts of the Cape and Southwest Africa. Not only do they illustrate the remarkable flexibility a single genus may exhibit in regards to external form, *Crassula* having perhaps no rival in this respect in South Africa except for *Mesembrianthemum*, but they also demonstrate clearly that the form of the vegetative organs is often no indication whatever of relationship, depending primarily on climatic, edaphic and other outside influences. Totally different in appearance from the above is *C. saxifraga*, which combines the flowers of *Crassula* with the habit and foliage of a saxifrage of the Section *Bergenia*, as exemplified by the well known *S. stracheyi* or St. Patrick's cabbage. Many more items could be quoted, but enough should have been said to substantiate the claim of the genus *Crassula* for more serious attention by our plant-collectors.

Recently quite a number of species new to our gardens have been introduced, including several of the things mentioned above, by Mr. Wm. Hertrich of the Huntington Botanical Gardens, Mr. Beecroft of Escondido, as well as others. Until this new material flowers, its exact identi-

fication will not be possible, and it is therefore for the present disregarded in the appended key. As an illustration of the confusion attending the subject, mention may be made of one new intro-

the only serious pest is Mealy-bug, best controlled by use of one of the various oil-sprays on the market. Care should be taken not to use too strong an emulsion, as *Crassula*, like most suc-

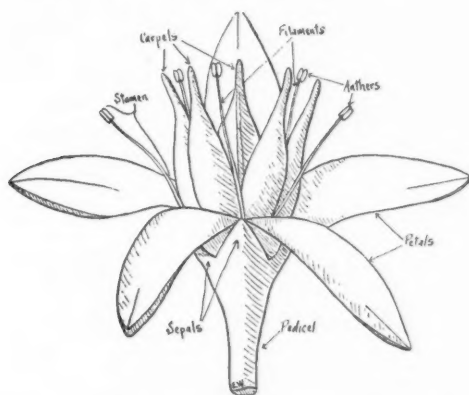


Fig. 1. *Crassula portulaca* Lam. (approx. 5x)

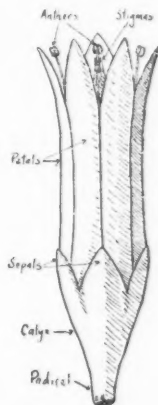


Fig. 2. *Crassula falcata* Wendl. (approx. 5x)

duction, i.e., *Crassula* (?) *adgavensis*. There does not seem to be any such thing in the "Index Kewensis," but there is a *C. andegavensis*, which is referred to *Sedum*. There are at least three species closely resembling a *Mesembrianthemum* in general appearance, and named accordingly *C. mesembrianthoides*, *C. mesembrianthemopsis* and *C. mesembrianthemoides*, one of which is said to be here now, a better illustration of how not to name plants would be hard to find. Another novel species has just flowered for the first time with our Mr. Willis, remarkable by reason of its conspicuously papillose leaves. It comes closest to the *C. margartiiifera* of the "Flora Capensis," but does not quite agree, and Mr. N. E. Brown himself has been asked to pass on the question. Another species just flowering for the first time is *C. elata* Dinter, seen in Mr. Weinberg's collection, and agreeing very well with Dinter's photo.

Culture is so simple that a few words should suffice. A few of the species are only doubtfully hardy, at least in the northern part of the State, and need at least partial protection during the winter, such as is furnished by a sheltering wall, an overhanging branch or a partial elevation above the general ground-level. Just as most of the *Crassulaceae*, so does *Crassula* also appreciate ample moisture at the roots, at least during the growing season. Propagation is easy, most species rooting readily from stem, or even leaf-cuttings, and only *C. rosularis* is perhaps better grown from seed. Aside from Nematode about

culents; is easily injured by oilsprays, and repeated applications of a weak dose will have to be depended upon for results. *C. falcata* suffers at times from what seems to be a fungous affection, apparently not mentioned in any available literature.

The name *Crassula* is derived from the Latin and means thick, referring to the thick and fleshy leaves. The genus belongs to the *Crassulaceae*, giving the name to the family of which it is probably the most primitive member. Its closest affinity is with *Tillaea*, a widely distributed genus perhaps scarcely distinct from it. Other near relations are *Rochea* and *Grammanthes*, both with coherent petals; *Macrosepalum* with alternate leaves and sepals that are longer than the petals; and *Sedum*, with twice as many stamens as there are petals. *Crassula* itself is almost wholly South African, being one of the many succulent xerophytes so characteristic of the rich Cape-flora. The generic characters may be summarized as follows:

Crassula L. A genus of about 300 species, almost wholly South African; herbaceous, subshrubby or shrubby; leaves mostly opposite, very rarely in a basal rosette, usually sessile, more rarely stalked, often connate at base, smooth, or finely downy, or ciliate at edges, often dotted, sometimes scale-like and imbricated; flowers with usually 5, very rarely 4 petals that are free to the base or nearly so; sepals shorter than the petals; carpels free, as many as the petals.

Key to species cultivated locally:

- 1a. Stem none; lvs. all in basal rosettes..... *C. rosularis* Haw.
 —b. Plants with evident stem and opposite leaves..... 2
 2a. Lvs. scale-like, closely overlapping; fls. axillary..... *C. lycopodioides* Lam.
 AA. Lvs. dull greyish-green..... var. *pseudolycopodioides* Dinter & Schinz.
 AA. Lvs. pale or bright green..... var. *viridis* Berger.
 —b. Lvs. otherwise, larger, remote, spreading..... 3
 3a. Lvs. abruptly narrowed at base into distinct stalk..... 4
 —b. Lvs. sessile, not or gradually narrowed at base..... 6
 4a. Leaf-blade to 1 inch long or more; petals 4..... *C. multicava* Lemaire.
 —b. Leaf-blades about 1/2 inch long; petals 5..... 5
 5a. Habit erect; lvs. decidedly cordate at base, obtuse, entire..... *C. cordata* Soland.
 —b. Habit trailing; lvs. scarcely cordate, acutish, crenulate..... *C. spatulata* Thunbg.
 6a. (3b) Lvs. densely greyish-downy or glaucous-pulverulent, to 3 inches long or more..... 7
 —b. Lvs. otherwise, usually shorter..... 8
 7a. Lvs. laterally twisted and compressed, curved; habit ultimately decumbent; fls. bright orange-scarlet.
 C. falcata Wendl.
 C. perfoliata L.
 —b. Lvs. straight, concave above; habit erect..... 9
 8a. (6b) Lvs. mostly quite distinctly ciliate at edges..... 9
 —b. Lvs. not ciliate..... 12
 9a. Lvs. curved laterally, twisted and compressed, green, to 2 inches long and 1/2 inch wide; petals with gland
 at apex..... *C. obvallata* L.
 —b. Lvs. otherwise..... 10
 10a. Lvs. broad, 1/2" wide or more, less than 3 times as long as wide..... *C. elata* Dinter. (*)
 —b. Lvs. narrower, rarely over 1/4" wide..... 11
 11a. Fls. bright red; lvs. irregularly tinged or dotted red, flat above..... *C. impressa* N. E. Br.
 —b. Fls. with white petals; lvs. convex above, red beneath, with dots more or less regularly arranged.
 C. cooperi Regel.
 C. tetragona L.
 12a. (8b) Lvs. awl-shaped, in cross-section rounded or obscurely tetragonous..... *C. tetragona* L.
 —b. Lvs. flat, distinctly broader than thick..... 13
 13a. Lvs. small, rarely over 3/4" long, broader near base; stems slender..... 14
 —b. Lvs. larger, to cover 1" long, broadest at or above the middle; stems stout..... 16
 14a. Habit usually trailing; lvs. broadest at base, distinctly dotted..... 15
 —b. Habit mostly erect; lvs. taper to base, scarcely dotted..... *C. monticola* N. E. Brown.
 15a. Lvs. truncate or cordate at base, with line of dots at edges..... *C. centauroides* L.
 —b. Lvs. connate & perfoliate at base, dots scattered..... *C. perfossa* Lam.
 16a. (13b) Habit trailing; lvs. acute, thin, flexible, connate at base, dull green, dotted at edges; fls. white.
 C. lactea Soland.
 —b. Habit erect; lvs. obtuse, thick, rigid, smooth, scarcely connate..... 17
 17a. Lvs. grey-green, to 2" long..... *C. arborescens* Willd.
 —b. Lvs. dark, shining green, mostly shorter..... *C. portulacae* Lam.

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 Bentham & Hooker—Genera Plantarum.
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 Burr-Davy, J.—The Flowering Plants & Ferns of the Transvaal.
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 DeCandolle, A. P.—Plantes Grasses.
 Dillenius, J. J.—Hortus Elthamensis.
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 Pflanzen, etc.
 Harvey, W. H.—Flora Capensis.
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 Maas, C. A.—Succulenta.
 Marloth, R.—The Flora of South Africa.
 Phillips, E. P.—The genera of South African Flowering Plants
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 Schoenland, S.—Engler & Prantl, Die Natürlichen Pflanzen-
 familien.
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Species of *Crassula* Grown in California

arborescens Willd.
bolusi Hook, J. D.—*C. cooperi* Regel.
cooperi Regel (*C. bolusi* Hook, J. D.)
centauroides L. (*C. marginalis* Ait.)
coccinea L.—*Rochea coccinea* DC.
cordata Soland. (*C. spatulata* Hort., not
 Thunbg.)
elata N. E. Brown.
falcata Willd. (*Rochea falcata* DC.)
impressa N. E. Br. (*C. schmidtii* Regel, *C. coop-*
eri Hort., not Regel, *C. rubicunda* Hort.,
 not E. Mey.)

lactea Soland.
lycopodioides Lam.
 —var. *pseudolycopodioides* Dinter & Schinz.
 —var. *viridis* Berger (?)
marginalis Soland.—*C. centauroides* L.
monticola N. E. Br. (?)
multicava Lemaire. (*C. quadrifida* Baker.)
obvallata L. (*C. dejecta* Hort., not Jacq.)
perfoliata L. (*C. longifolia* Hort., *C. gigantea*
 Hort.)

Continued on page 135

(*) *Rochea falcata* might be looked for here; it differs in that the corolla is brilliant red, larger with petals connate; in that the leaves are closely overlapping, sheathing the stem at the base, and the latter is strictly erect and quit smooth. In *Crassula elata* the flowers are small, white, with petals not connate; the leaves are remote, not sheathing the stem at the base, the latter is slender, trailing, and hairy.



CACTUS IN CANADA

C. W. Armstrong, Vancouver, B. C.

Speaking of Cacti it may surprise at least some of our readers to know that in our presumably cold north of British Columbia we have two varieties of *Opuntia*, one thimble like, *O. fragilis*, with short, nearly round joints an inch to an inch and a half long. It varies greatly in length of spines, so much so that they could easily be taken for different varieties. I have specimens with spines only a quarter of an inch long from Kamloops and others with spines over an inch long from Penticton.

Our other species is *O. polyacantha*. It has flat joints up to three inches long with white hair-like bristles an inch long; both have sulphur-yellow flowers.

Further east of us in Alberta we have *O. polyacantha* with joints four or five inches long, very densely covered with white spines over an inch long, which I found very penetrating when I made a hasty acquaintance with them many years ago over a horse's head when he stumbled into a gopher hole. I couldn't miss it as it grew in large patches in this particular district. I have a clump in my rockery that flowered beautifully this summer as shown in the accompanying illustration.

We have no *Mammillaria* in British Columbia, but in Alberta just east of the mountains we have *Neomammillaria vivipara*, with satiny rose-purple flowers. It is not so easily seen as it grows flat in the long grass of the prairies. The fruits have the size and rich flavor of an English gooseberry.

This is not a very technical description of our Cacti, but I hope it will serve to show this truly wonderful family of plant life is at least represented in our flora.

COMMENTS

The arrival of the first copy of your magazine was one of the most pleasant surprises I have had and I devoured every word in it. I hope it will be a huge success and will grow and develop for years to come. I have long wondered why such a magazine was not published.

My interest in cactus has been merely as a hobby and it has given me a great deal of pleasure. I have procured all the books on the subject I have been able to find and am still interested in adding to my cactus library.

If there is anything I can do to help please do not fail to call on me.

PRICE CROSS, JR.
Texas.

CRASSULA

Continued from page 134

perfoosa Lam.
portulacea Lam.
quadrifida Baker—*C. multicava* Lemaire.
rosularis Haw.
schmidtii Regel—*C. impressa* N. E. Brown.
spathulata Thunbg. (*C. cordata* Hort., not Soland.)
tetragona L.

OZONIUM ROOT ROT

By H. C. KEGLEY

The extensive movement of cacti and succulents from points in Arizona, New Mexico, Oklahoma and West Texas, to points in California seems to be at least temporarily tied up by a recent order of the California Department of Agriculture, because of the prevalence of Ozonium Root Rot in those states.

As a safeguard against the disease being spread beyond a few isolated districts in which it now is being combatted, G. H. Hecke, director of the Department, has issued a ruling to the effect that movement of plants, vines, shrubs and trees from the above-mentioned states to California cannot be made except upon certification by the State Entomologist in the state where the shipments originate that the plants were gathered in districts which are known to be free from Ozonium Root Rot.

A. C. Fleury, supervising quarantine officer for the Department, says that Ozonium Root

Rot should not be confused with crown gall, which is commonly known as root knot, because the former is an entirely different organism, prevalent and quite destructive in the states against which the official order was issued.

It is asserted that the organism is found among the roots and in the soil around the roots of plants, and that it cannot always be detected by the eye. Supervisor Fleury states that after a more careful study of the organism has been made it may be possible to modify to a reasonable extent the present quarantine against it, but that until more is known concerning it the present ban seems to be fully justified.

This would appear to automatically check for many months to come any extensive shipments of cacti and succulents from other states in the Southwest, and perhaps explains why many collectors who ordered plants from nurserymen in Arizona, New Mexico and Texas weeks ago have not yet received them.

Road-Runners, Snakes, and Cactus

The same old question! Do road-runners build a barrier of cactus around a snake so as to kill the snake? No! Road-runners do kill some snakes and lizards by jumping up in the air, landing on the reptile, pecking it, striking it with the claws and wings; and then it eats the reptile.

Road-runners eat some snakes and lizards, seeds, and insects, but they do not build any kind of a trap to catch their food supply.

Snakes and lizards crawl all around in cactus. The thorns do not seem to stop them at all. I have seen a snake crawl up in a cactus bush, coil up in a pad and go to sleep. One chuckawalla in my collection spent most of last winter on top of a barrel cactus. I have seen a lizard make a jump for an insect and land on cactus thorns with no bad results. Again, one lizard landed on a cactus thorn which penetrated the belly. The lizard died from this accident.

Many flying insects fly into cactus thorns and cannot get off again. Lizards often take these insects off the cactus thorns for food. Many birds also get some of their food in this way. Snakes will crawl all over and around in a clump of cactus to catch the rodents that live around cactus plants.

WILLIS ROWE,
President, Herpetological Society
of California

Gentlemen:

The greatest surprise and one of the most pleasant ones was when I received your copy of July. It is wonderful reading and very correct. You have started a long-felt want and more glory to you. California takes the lead again. I am going to write my friends and collectors that I know and boost this worthy cause. Wishing you and the Journal success.

HARRY L. BATESON,
Arizona.

Your President spent an enjoyable day at the Huntington Botanic Garden in cooperation with Mr. William Hertrich, Curator, and Mr. Eric Walther, botanist in charge. The day was spent in taxonomically determining many of the Cereae, many of which had not hitherto been definitely determined.

Among the most interesting finds of the day was a fifth *Myrtillocactus*, not recorded in Britton and Rose. Its large fruit and solitary central spine always accompanied by 3 radials, differentiate it from *M. geometrizans* with its 5 to 9 radials, *M. schenckii* with its 6 to 8, and *M. eichlanii* with its 5. On a complete check of the literature of this genus I expect to name the species *Myrtillocactus bertrichii*, n. sp.



Courtesy Horticulture Magazine

THE WINDOW GARDEN

By GRACE A. M. CLARK, *Sharon, Mass.*

Summer is the best time in the New England States to buy and transplant miniature cacti for the window garden, the reason being this, one has time now to collect his material in the open air and leisurely go about the work of potting. Then, too, during the summer months one can pick up many pretty pieces of pottery in which to plant cactus. The bright colored bowls and pots set off the colors of the cacti to great advantage and also add to the color and brightness of a room. When studying the beauty of the spines and colors and shapes of miniature cacti one should use a small microscope.

It is very wise to wear thick gloves when working with cacti. I also use sugar tongs to hold them upright when potting them, because if one gets the tiny spines in one's fingers there will be severe suffering until they are removed. I paid many a doctor's bill for this very thing until I learned never to hurry and never to put my bare fingers on the *Opuntias*, *Mammillarias* or *Echinocactus*.

When preparing to pot up cacti first mix your soil in a pile. Take one-third gravelly sandy soil and two-thirds garden soil. Mix thoroughly together and then add a small quantity of pounded brick. Also add a tiny amount of pulverized charcoal. Place in your bowls about an inch of fine gravel or small stones, then put in

the mixed soil, add some tiny stones to resemble a rock garden and tuck in your cacti, taking care to spread the roots well.

A few *Sedums* and *Echeverias* help to add soft shading to the potted collection. They must be watered oftener than the *mammillarias*, *echinocactus* and *echinocereus* plants; I use a small medicine dropper to apply the water closely around them and also around the *opuntias*, which also need more watering than many of the other cacti.

Sunlight is essential for growing cacti but no harm is done if one wishes to place the bowls on tables or around the rooms, providing one does not keep them more than a week out of the sun-lighted window.

Gentlemen:

The Journal received, and I think it is fine. I am a victim of this condition termed *Cactusitis*. Although a practicing physician, have found no antidote for the malady. Therefore am obliged to join the gang.

Wishing you great success, I am,

Respectfully,

JOHN B. SEEDS,
Florida.

YOUR SECRETARY'S SPINAL COLUMN

By R. E. WILLIS, 2721 Bellevue Ave., Los Angeles

The November meeting of The Cactus and Succulent Society of America was held November 23rd at the Arroyo Seco Branch of the L. A. Public Library. There were 65 members present. In the absence of the president and first vice-president, Mr. Ned Lawrence was elected to preside at the meeting. The usual routine business was attended to, after which the balance of the evening was spent in adopting new by-laws which will be published later. In compliance with the by-laws, a nominating committee of three, to nominate officers for the ensuing year, was elected as follows: Mr. John Vosberg, Col. Perrie Kewen, and Mrs. Lee Chamberlain. Mr. Howard Gates presented a lovely three-branched dwarf Joshua tree for the drawing with the four other plants. Mrs. F. O. Frazier drew first choice, Mr. G. A. Frick second choice, Mr. Karl Frick third choice, and Mr. Kitteringham fourth choice, and as there was only one plant left, he wisely chose that. Mr. J. A. Scannavino of San Francisco won the out of Los Angeles County prize. The meeting adjourned at a late hour.

The December meeting was held in Riverside in the lovely Fairmont Park. We were guests of Mr. and Mrs. R. B. Whitfield, 333 North Fairmont Blvd., Riverside. About 100 members were present, a goodly number bringing their lunches. Coffee was provided by Mrs. Whitfield. After the inner man was satisfied the meeting was called to order by the president, Dr. Arthur D. Houghton. Mr. Weinberg presented a letter from Ferdinand Schmoll of Edo. Qro. Mexico to be read to the Society. The letter presented to the Society two oil paintings of cactus plants in their native habitat. Mr. Weinberg suggested that since the Society has no regular meeting place, the pictures be loaned to the Huntington Art Gallery until such time as the Society has a suitable place in which to hang them. The Society voted to comply with this suggestion. It was also voted to send a letter of appreciation to Mr. Schmoll. Mr. Schmoll is the man who furnishes many of us with our cactus seed. A vote of thanks was extended to our hostess, Mrs. Whitfield for her hospitality, and the four lovely plants which she presented to be drawn for. First choice went to Mrs. Irene C. Hartley; second choice to Mrs. R. A. Chapman; third choice to Mrs. Lanette Kidson. Out of Los Angeles County members not present plant was won by Mr. W. H. Moulthrop of San Francisco. After adjournment a trip to Mrs. Whitfield's lovely garden and to White Park was made. A considerable number stopped on the way home at Mr. Bradbury's place in Fontana to look over his treasures recently acquired on an extensive trip through the East and South.

It seems fitting that we held our last meeting of a perfect year in the shadows of Mr. Rubidoux. It was a sunset seen from the summit of Mt. Rubidoux that inspired Carrie Jacobs Bond to write "The End of a Perfect Day."

Miss M. E. Colter, landscape artist and architect representing Fred Harvey, recently called upon the writer. Miss Colter is planning a rather extensive Cactus garden at one of the Fred Harvey hotels in Arizona. She is also planning a stone garden, not rock garden; there will be no plants in her stone garden. Her scheme sounds most interesting. Miss Coulter will be a member of our Society starting January 1.

Mr. A. L. Hine-Haycock of Devon, England, an enthusiastic member, and subscriber to *The Journal*, writes as follows: "I must congratulate you all on your excellent and most interesting production, *The*

Journal, and also Dr. Houghton on being so kindly explanatory when using technical terms in his articles."

Mr. F. W. Campbell of Detroit, Mich., sent in the following clipping by J. H. Watson, F. E. S., from the *Gardening Illustrated*, published in Canada. "An interesting plant found in the region of Saskatchewan, near the great White Trail (which was the migration path of the bison and where there are thousands of their bones bleaching on the prairies) is the Canadian Cactus, a species of *Opuntia* which evidently preserves itself from the terrific below zero weather by attracting dead leaves and grasses on its spines, which make a veritable nest about it." This must stand easily 50 degrees below zero and is a succulent at that. One thinks usually of Cactus as a denizen of terrifically hot zones. This species is a last northern remnant of a tropical flora which once covered all the northern portions of America. Coal found on the Arctic Islands and Bread-fruit trees in the Greenland fossils are evidences of this phase of our earth's life.

The National Mid-Winter Flower Show, Inc., of Encinitas, Calif., has invited us to make an exhibit of cactus and succulents at their next show, which will be held in Encinitas February 19-23. Class 25 offers \$25.00 cash silver trophy and blue ribbon as first prize; \$10.00 cash and red ribbon as second prize, and an award of merit as third prize for the best collection of rare cacti and succulents. Entry blanks, etc., may be obtained from Thos. F. McLoughlin, Box 213, Encinitas, San Diego County, Calif.

Dr. Grace P. Nickerson, who writes such interesting and instructive articles on cactus and describes in our *Journal* in such charming manner private cactus and succulent gardens, was the victim of an automobile collision, in which her car was completely demolished and she herself severely injured. She is pronounced entirely out of danger, but is still in the hospital and will be for some time. It is not expected that she will be able to resume her work until Spring. I am sure the entire membership of the Society joins me in wishing her a speedy recovery.

Newly Elected Officers of the Cactus and Succulent Society of America for 1930

185 Votes Cast

	No. of Votes
President..... R. E. Willis	180
1st Vice Pres..... Edward W. Lawrence	173
2nd Vice Pres..... E. O. Orpet	176
3rd Vice Pres..... Wm. Hertrich	175
4th Vice Pres..... James West	179
5th Vice Pres..... Ann G. Powers	170
6th Vice Pres..... Mrs. A. E. Harris	169
Secretary..... Boyd L. Sloane	170
Treasurer..... Margaret Bonyngne	175
Librarian..... G. A. Frick	179
Editor..... Scott Haselton	178
Executive Board... J. A. Ekdon	175
Executive Board... Dr. Grace P. Nickerson	168
Executive Board... Dr. Willannie Breden	169

QUESTION PAGE

By F. WEINBERG

Please explain the difference between an amateur, a professional and a collector.—

JAMES MARSH.

The following conversation takes place at a nurseryman's.

"I wish to buy a few cactus and would like to see some of your plants!"

"Any particular variety you are looking for?"

"No, sir, not exactly. I am just an 'Amateur' and as yet not very familiar with the different varieties."

This party is a beginner, a layman, a novice, but not an amateur. An *amateur* is any person who may take up any kind of a profession (in this instance it may be gardening or cultivation of plants) for pleasure or as a hobby without any money profits.

Another party in going to a cactus dealer may say:

"I would like to see what you have in the line of rare plants. I am a *collector* of cactus, especially Euphorbias, and I wish to enlarge my collection!"

Now this party is just an amateur, a *fancier* of cactus, etc., but not a *collector*.

A *collector* of plants is a man who goes out into the fields or mountain regions and gathers plants in their own habitat or localities for study or pleasure, and who sells them to make a living.

Willis, having got together perhaps one of the largest private collections in the United States, is a *fancier* of such plants and an amateur, but not a collector.

Any one who goes out and collects or obtains plants either by purchase, exchange or otherwise and sells or resells them, or cultivates and propagates plants and sells his surplus is a *professional*. Mr. Wegener, having formed a large collection of Phyllocactus and slender stemmed Cereus, etc., for his hobby and pleasure as an amateur and fancier, now advertises and sells off his surplus and by so doing obtains money for same, he now becomes a professional.

Any one, professional or amateur, who cultivates certain varieties of plants and by doing so, through long years of study and experience obtains a varied knowledge in history and cultivation of plants and is known as such, is an *expert* in that particular variety of plants. Thus Mr. Wm. Hertrich is widely considered an expert on xerophites.

Any professional or dealer who cultivates and sells a certain variety of plants exclusively becomes a *specialist*. Thus Mr. Ackermann is called a specialist in Cactus and Succulents.

One who will contract to take each and every plant of a collector, either by outright purchase or on a commission basis, is called a *sole agent* or *distributor*. Uncle Sam who sends his botanists out all over the world to search for and collect unusual new plants for decorative or farm and orchard purpose, cultivates and propagates plants at his experimental stations and then gives the output away free to qualified persons for experimental purpose to ascertain their respective value, is a *distributor*.

Any one, botanist or otherwise, who may make a lifetime study and conduct research work of a certain genera of plants, classifying, subdividing and arranging them into different classes, and describing them with or without photos and descriptive drawings, new

as well as old known plants, into a monograph, becomes an *authority*. Thus Dr. N. E. Brown is an authority on Mesembryanthemums, and Mr. Alwin Berger on Liliaceae (Aloes, etc.).

One who may write an article or description of one plant or another, either new or old, with or without photos and descriptive drawings, may be called an *author*.

Any college graduate botanist who may have a chair in some college, university, or botanic garden, lecturing botany, having perhaps a few dozen pots of plants and a library at his disposal, never having been in the field to observe or study any plants in their natural habitat, yet forms snap judgment theories without any bearing or foundation, just copying, repeating and re-writing articles with slight change but no originalities, is a copyist and a hindrance to science. Much of the confusion is caused by such persons.

GENUS OPUNTIA

Continued from page 124

This series is much favored in Cactus collections on account of their oddity of form, their long persisting bright colored fruits and the puzzle of their evolution and relationships. The writer is convinced that much field work must be done before our knowledge of this series is complete, and when all the species and varieties of this series have been grown together and studied, important facts will be discovered relative to the whole matter of cactus evolution. Mr. Bradbury of Fontana, Calif., Mr. John Hamilton of Flintridge, and Mrs. John Wright of Santa Barbara are collecting Opuntias, usually considered a thankless group by plant collectors, so as to subject them to more thorough study. The writer expects in the near future to call a symposium together on the Cylindropuntias.

Mail subscriptions and ads to 1800 Marengo St., Los Angeles. Subscription price \$3 per year including Society dues; foreign \$3.50.

I enclose herewith \$_____ for one year's dues in the Society and one year's subscription to the *Journal of the Cactus and Succulent Society of America*. Subscription price without membership, \$3.50.

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